voltalia

CRUACH CLENAMACRIE WIND FARM

CHAPTER 4:

ASSESSMENT OF ALTERNATIVES

November 2024

RESPONSIBILITIES

	DATE	NAME	FUNCTION
Elaboration	04/07/2024	Isla Ferguson	Author
Validation	21/08/2024	Corey Simpson	Project Manager Review
Approval	12/11/2024	Alexander Hamilton	Applicant Approval

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ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AOD	Above Ordnance Datum
BESS	Battery Energy Storage System
ECU	Energy Consents Unit
EIA	Environmental Impact Assessment
FLS	Forestry and Land Scotland
GDL	Garden and Designed Landscape
GIS	Geographic Information System
JRC	Joint Radio Company
m	metres
NRHE	National Record of the Historic Environment
RD	Rotor Diameter
SAC	Special Area of Conservation
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Area
SSEN	Scottish and Southern Energy Networks
SSSI	Site of Special Scientific Interest
QGIS	Quantum Geographic Information System

4 ASSESSMENT OF ALTERNATIVES

4.1 Introduction

This chapter outlines the process undertaken in selecting the Site as a potential location for a wind farm development, provides a description of the Site and surrounding area, and discusses the design evolution and the alternatives that were considered during that process.

One of the principles of the Environmental Impact Assessment (EIA) process is that site selection and project design should be an iterative, constraint-led process. This process seeks to ensure that potential negative impacts, as a result of the Proposed Development, have been avoided or minimised as far as reasonably practicable. This chapter draws on issues considered in more detail in the relevant technical chapters in this **EIA Report** (**Chapters 6 – 17)**. This chapter does not provide the conclusions of the technical chapters but explains how potential environmental impacts have informed the design of the Proposed Development.

Developers use a range of criteria to select sites for the development of onshore wind projects. The Applicant identified the Site as having potential for onshore wind development and entered into an agreement with the landowner to develop the Site. The Applicant also has a pipeline of other potential sites that they are assessing for future development. These potential sites are not considered to be alternative sites to the Proposed Development and alternative sites are not considered further in the EIA Report.

The final design for the Proposed Development is described in **EIA Report Chapter 5: Project Description**.

4.2 Legislative Framework

4.2.1 Legislation, Policy and Guidance

4.2.1.1 Schedule 9 of the Electricity Act 1989

This EIA Report has been prepared in respect of a development which will be applied for in the context of Section 36 of the Electricity Act 1989[1].

Paragraph 3(1) of Schedule 9 outlines that the Applicant:

"(a)shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and

(b)shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects."

Throughout the design process, the Applicant has sought to develop a scheme that considers the duties outlined above. These matters have also been considered in the EIA process and are presented in the EIA Report. As such, Scottish ministers are required, under Schedule 9 Paragraph 3(2) to assess as to whether the Applicant has complied to the duties outlined in Schedule 9 Paragraph 3(1).

Schedule 9 also outlines, under Paragraph 3(3), the requirements for the protection of fisheries by generating license holders:

[1] The Electricity Act 1989. https://www.legislation.gov.uk/ukpga/1989/29/contents (Accessed 10/06/2024)

"(3) Without prejudice to sub-paragraphs (1) and (2) above, in exercising any relevant functions each of the following, namely, a licence holder, a person authorised by an exemption to generate or supply electricity and the Secretary of State shall avoid, so far as possible, causing injuries to fisheries or to the stock of fish in any waters."

The assessment of impacts on fish is discussed in **EIA Report Chapter 9: Geology, Hydrogeology, Hydrology and Soils** and in **EIA Report Chapter 10: Ecology**.

4.2.1.2 The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017

Regulation 5(2)(d) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the "EIA Regulations")[2] requires Environmental Impact Assessment Reports to provide:

"a description of the reasonable alternatives studied by the developer, which are relevant to the development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment."

Schedule 4 (2) of the EIA Regulations expands upon this, requiring:

"A description of the reasonable alternatives (for example in terms of development design, technology, location, size, and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."

4.2.1.3 Planning Advice Note 1/2013

It is noted that Planning Advice Note 1/2013: Environmental Impact Assessment[3] recognises that while potentially significant effects on the environment are key considerations in the design process, economic and engineering feasibility are also key to the finalised design.

Reasonable alternatives must be relevant to the project and its specific characteristics (for example in terms of development design, technology, location, size, and scale). The consideration of alternatives is therefore restricted as appropriate to alternative design iterations that were considered for the Site in question, in terms of factors such as site layout/design/turbine height and turbine numbers, and the environmental impacts of the options considered. As the purpose of the Proposed Development is to provide low carbon renewable energy while also meeting renewable energy and decarbonisation targets, a 'no scheme' alternative has not been considered further.

4.2.2 Technology

Onshore wind continues to be one of the cheapest forms of renewable energy. There is a reduction in the supply of smaller wind turbines across Europe due to a lack of demand as manufacturers recognise a shift to larger machines. Larger scale turbines ensure higher wind yield, improving the contribution a wind farm makes to renewable energy generation targets and ensuring commercial viability for the wind farm. The Proposed Development's contribution to energy generation targets is discussed in detail in **EIA Report Chapter 2: Planning and Renewable Energy Policy** and **EIA Report Chapter 17: Climate Change and Carbon Balance**.

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[2] The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. https://www.legislation.gov.uk/ssi/2017/101#:~:text=5.,(%E2%80%9CEIA%20report%E2%80%9D).&text=(f)any%20other%20information%20specified,features%20likely%20to%20be%20affected. (Accessed 04/07/2024)

[3] Planning Advice Note 1/2013: Environmental Impact Assessment https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/documents/ (Accessed 07/06/2024)

4.2.3 National Targets

The Scottish Government's commitments for a transition to a Net Zero economy are enshrined in legislation. This includes a net zero target for 2045. Subsequent policy such as the National Planning Framework 4, encourages further deployment of renewable energy technology as part of the strategy to achieve Net Zero, and the Onshore Wind Policy Statement 2022 requires 12GW of additional onshore wind energy deployed by 2030. In this policy context, larger scale turbines will be required to meet these targets. This is discussed further in the accompanying Planning Statement.

National targets have a role to play in determining the appropriate scale of the wind turbines proposed. Further information on targets is available in **EIA Report Chapter 2: Planning and Renewable Energy Policy**.

4.3 Scene Setting and Site Location

The Site is located approximately 7km east of Oban within the Argyll and Bute Council area, as illustrated in **Figure 1.1 – Site Location Plan.** The Site is bordered by Fearnoch Forest, which is owned and managed by Forestry and Land Scotland (FLS), to the east, south, and west. The landscape within the Site is characterised as craggy upland with oak-birch woodland, rounded knolls, rocky outcrops, and numerous lochs in low-lying hollows and glens. The terrain is hilly with a maximum elevation of 273m Above Ordnance Datum (AOD).

When identifying this location, the Applicant considered several factors before deciding to take the location forward for development including:

- Initial studies identifying that there is sufficient wind resource;
- No international or national statutory designations within the Site;
- Access from the public road network; and
- Availability of an option for a grid connection.

The grid connection point will be at the Taynuilt substation. The nature and location of the connection will be determined by Scottish and Southern Energy Networks (SSEN) in a separate application process. The grid connection therefore is not included as part of this current application and will not be assessed in this EIA Report.

4.3.1 Site Selection

The Applicant employs a staged process when considering the feasibility of land for wind energy development. Initial assessments consider the viability of wind energy development by establishing whether a site meets four specific criteria. These are:

Wind Yield: The available wind resource is a key factor when considering the commercial viability of a potential wind energy development.

Access: Wind turbines consist of several large components, most notably the blades. Roads and tracks used to access the site have to be able to accommodate the transportation of turbine components.

Viable Grid Connection: The distance of a site from the grid network can have a significant impact on the feasibility and the economic viability of a proposed development.

Available Land: It is crucial that there is sufficient land available for appropriately sized wind energy development, taking into consideration the current land use.

Sites are then ranked by suitability with only the most suitable sites progressing to more rigorous desk-based assessments using Geographic Information System (GIS) to analyse and map geographically referenced information.

The Proposed Development was assessed as being suitable based on the following criteria:

- The Site is not within an area of high natural or cultural heritage sensitivity or international or national nature conservation designations (i.e. SPA, SSSI or SAC, etc);
- The Site has a suitable wind resource;
- It has good access through Fearnoch Forest via the A85;
- The Site is within proximity of Taynuilt substation offering a viable grid connection;
- The Site is a suitable proximity, over 1km, from any residential properties; and
- The landowner is locally based and wishes to diversify the estate through the potential to host a wind energy development.

A detailed feasibility study was then undertaken, taking account of the selection criteria identified above, but also assessing more detailed constraints including landscape and visual, forestry, cultural heritage, and ecology.

4.3.2 Planning History

The location of the Proposed Development has had no prior applications for wind developments. The Argyll and Bute planning portal indicates that there is only one planning application associated with the Site which is for a Meteorological (met) Mast associated with the Proposed Development and was consented in April 2024 (24/00069/PP). The met mast would be in place for up to five years and its purpose would be to collect data prior to the construction of the Proposed Development. It would be situated to the south-west of the Site.

4.4 Design Principles

4.4.1 Key Design Criteria

NatureScot's guidance document 'Siting and Designing Wind Farms in the Landscape'[4] provides a framework for the consideration of key design issues including turbine size and layout composition, to reduce landscape and visual impacts. Good practice for environmental considerations is discussed in detail in the corresponding chapters of this EIA Report.

The following principles were adopted during the design iterations to ensure that the final design of the Proposed Development was the most appropriate and optimal for the Site:

- Creating a wind farm that is appropriate for the existing landscape and visual environment;
- Areas of deeper peat have been avoided as far as possible to minimise the potential impact on peatland habitats;
- All residential properties have been considered during the design phase to minimise impacts of noise, shadow flicker, and visual impact by applying appropriate offsets;
- The topography and contours of the Site have been taken into consideration within the design process, including when setting out the turbine location, access tracks and crane hardstandings to avoid steep slopes and ensure access track gradients are below 12%. This ensures the deliverability of the Proposed Development and that environmental and construction best practices can be adhered to;

[4] NatureScot (Scottish Natural Heritage) (2017). Siting and Designing Wind Farms in the Landscape: Version 3a. Available at: https://www.nature.scot/sites/default/files/2017-11/Siting%20and%20designing%20windfarms%20in%20the%20landscape%20-%20version%203a.pdf (Accessed 03/07/2024)

- The Proposed Development turbine layout has been designed to minimise impacts on the settings of designated heritage assets such as scheduled monuments, listed buildings, Garden and Designed Landscapes (GDLs), and conservation areas;
- Use existing access tracks as much as possible, minimising the need for new access tracks; and
- Sensitive siting of the proposed infrastructure incorporating appropriate minimum buffer distances from environmental receptors to avoid or reduce effects on the environment which include:
    - 81m blade overhang;
    - 50m from watercourses;
    - 50m from National Records of the Historic Environment (NRHE) (Canmore) sites;
    - Offsets from fixed links as cleared by the operators;
    - Appropriate offsets from ecological and ornithological receptors based on expert guidance and industry standards; and
    - 800m from residential properties.

4.5 Site Constraints

Initial constraints were identified through a desk-based assessment, utilising publicly available data provided online by the appropriate authority bodies. Key constraints within the Site are shown in **Image 4.1**. Constraints that were considered during the early design process are described below:

- Landscape and visual constraints;
- Sensitive ornithology receptors;
- Protected species and habitats;
- Sensitive habitats;
- Topography;
- Ground conditions (including peat);
- Watercourses and private water supplies;
- Cultural Heritage and Archaeological assets;
- Residential Properties (considered in relation to noise, shadow flicker and visual impacts);
- Aviation receptors;
- Telecommunications links; and
- Forestry.

4.6 Design Evolutions and Iterations

The design of the Proposed Development has evolved over the past three years, over which time further information about the Site has been collected allowing the Applicant to understand the Site's capacity to host a wind energy development. These studies have shaped and altered the size of the "developable" area and included constraints like water courses and landscape and visual considerations.

A landscape and visual feasibility assessment was the first assessment to be carried out, suggesting that the Site was a low/medium risk for wind energy development from a landscape and visual point of view. Wireline modelling suggested that turbines of up to 200m could be accommodated. Other considerations included:

- The Site was not located within any landscape designations;
- Visibility from nearby settlements and main transport routes would be relatively limited; and
- Views from neighbouring properties within 2km would be mostly screened.

The above assessment therefore suggested that the Site held a low to medium risk for wind energy development from a landscape and visual point of view.

Following the above, the design process of the Proposed Development has had four key iterations. These iterations have considered environmental constraints, results from environmental baseline surveys, scoping responses from consultees, and feedback from public consultation events. These iterations are shown in **Figures 4.1 – 4.4** and are described below along with the key decisions made.

4.6.1 Layout Iteration 1

4.6.1.1 Boundary

The boundary at this stage followed the fence-line of Fearnoch Forest to the south, west, and east and provided an offset to the SSSI to the north.

4.6.1.2 Turbine Layout

An initial constraints feasibility exercise was undertaken in March 2023 using Quantum Geographic Information System (QGIS) software to map the constraints known at that time and to understand the potential capacity of the Site. At this stage, it was identified that the Site could host up to eight turbines when taking into consideration all the known constraints. These constraints are illustrated in **Image 4.1** and were submitted along with the EIA Scoping Report (ECU00004841).

The dimensions of a Vestas V162 at 200m to tip were used to calculate an 81m blade overhang buffer from the boundary. This buffer has been applied to ensure that the turbines were sited so as to not overhang into neighbouring landholdings which the Applicant does not have permission to develop.

There are several watercourses present within the boundary including the named Allt an t-Sean- achaidh and a number of unnamed watercourses and drains. A 50m buffer was applied to all the watercourses within, and in close proximity to, the Site as per Scottish Environment Protection Agency (SEPA) guidance. Providing an appropriate distance between any potential development and associated infrastructure and watercourses and minimising any potential impact on the water environment.

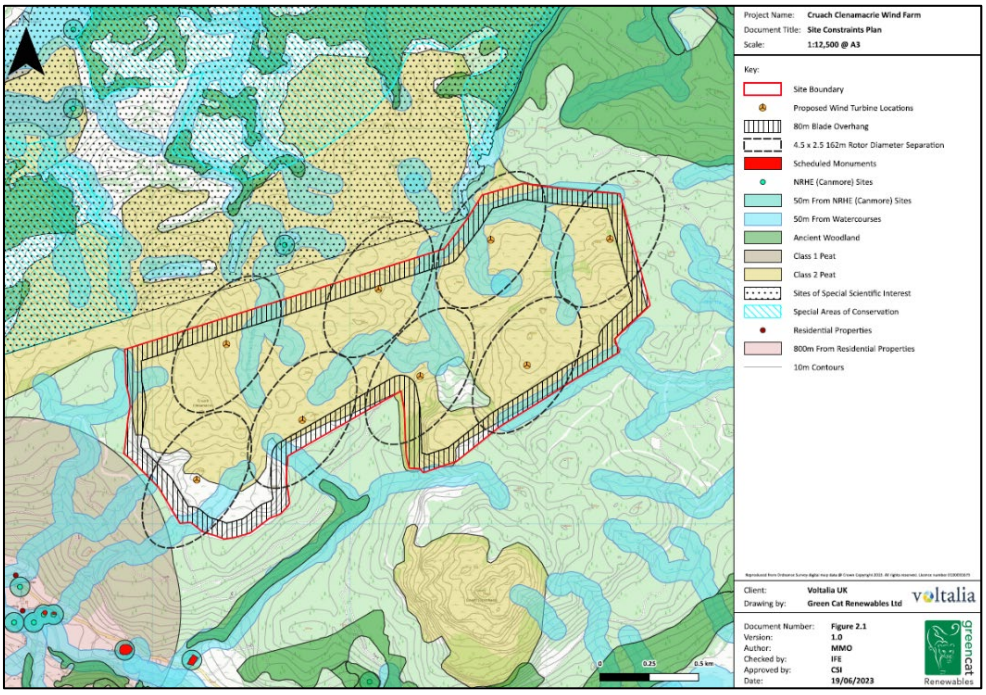

IMAGE 4.1 - INITIAL CONSTRAINTS SUBMITTED TO SCOPING

The majority of the Site is covered in Class 2 Peat, which is considered to be of national importance and high conservation value. However, due to the abundance across the Site, it was not possible to avoid in its entirety but was avoided where possible and where topography allowed. At this time, survey work had not confirmed the peat depths or verified the quality of peat across the Site.

A minimum buffer of 800m was applied to all residential properties within close proximity to the Site to reduce noise and other potential impacts resulting from the turbines of the Proposed Development. It was identified that all properties are outwith 800m of the boundary and the closest property is at Glenamachrie which is located ~820m to the south-west of the boundary.

Additionally, a turbine separation of 2.5 x 4.5 Rotor Diameter (RD) was applied to the turbines to ensure optimal separation and wind yield. This was reduced from a 3 x 5 RD separation which allowed the addition of the eighth turbine.

4.6.1.3 Access Route

Two access routes were proposed during the EIA Scoping stage as illustrated in **Image 4.2.** Option one utilised FLS land, while Option two utilised land owned by the landowner of the Site. Both routes were proposed at this stage in order to maintain flexibility and design options and understand feedback from the key stakeholders during the scoping and exhibition processes.

4.6.1.4 Summary

This initial layout, including eight turbines, as illustrated in **Image 4.2** and **Figure 4.1** which was submitted to the Scottish Ministers for an EIA Scoping Opinion in June 2023 and exhibited at the first round of public consultation events in October 2023 at Taynuilt, Kilmore, and Connel.

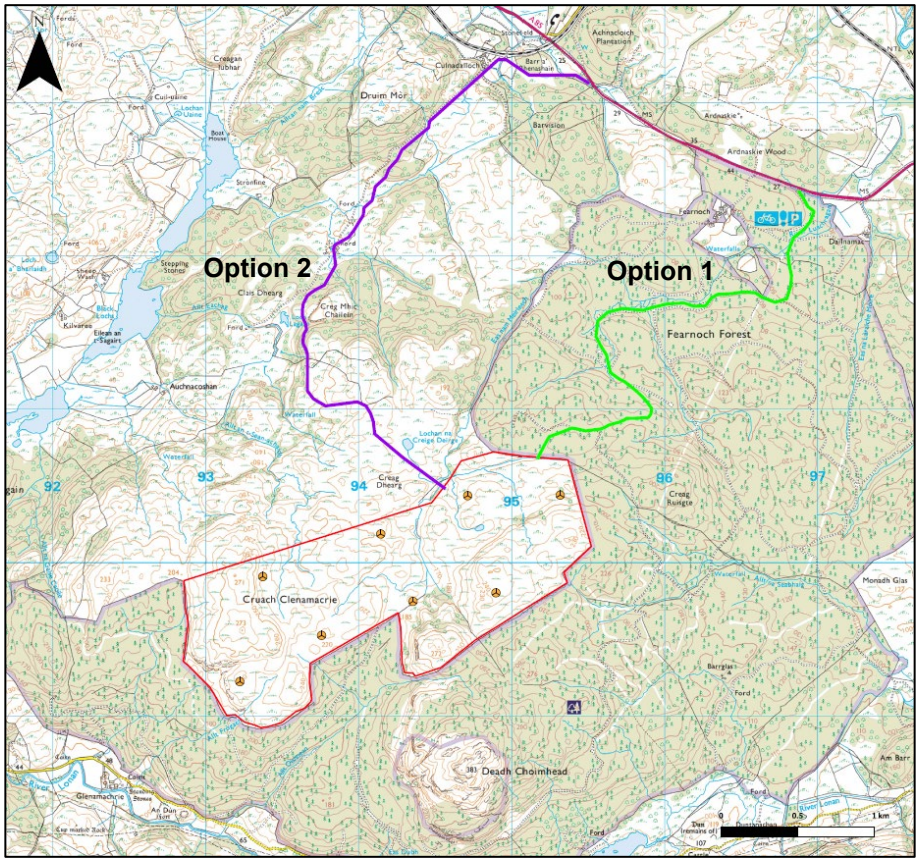

IMAGE 4.2 – ITERATION 1 EIGHT TURBINE LAYOUT AND ACCESS ROUTES

4.6.2 Layout Iteration 2

Following receipt of the EIA Scoping Opinion from the Energy Consents Unit (ECU), public exhibition feedback, further survey work, and a design workshop held in September 2023, several design changes were made. The reasons for these changes are outlined in the following sections. The resultant second design iteration can be seen illustrated in **Figure 4.2.**

4.6.2.1 Boundary

At this stage, the boundary was increased to the north to allow room for infrastructure design while being able to respect the constraints outlined in the following sections and minimise impacts to these as far as possible.

4.6.2.2 Turbine Layout

4.6.2.2.1 Ornithology

Due to the presence of Hen Harrier and Black Grouse in proximity to the Site; the Applicant consulted NatureScot, reviewed literature and appropriate buffers were applied to Lek and Nest sites. These were 300m from Hen Harrier Nests and 500m from Black Grouse Leks[5]. As such, turbines were moved to be sited outwith these buffers to ensure appropriate separation and minimise disturbance. To accommodate this, one turbine had to be removed resulting in the seven-turbine layout illustrated in **Image 4.3**. **EIA Report Chapter 11: Ornithology** further details the mitigation proposed to minimise any potential impacts on these species.

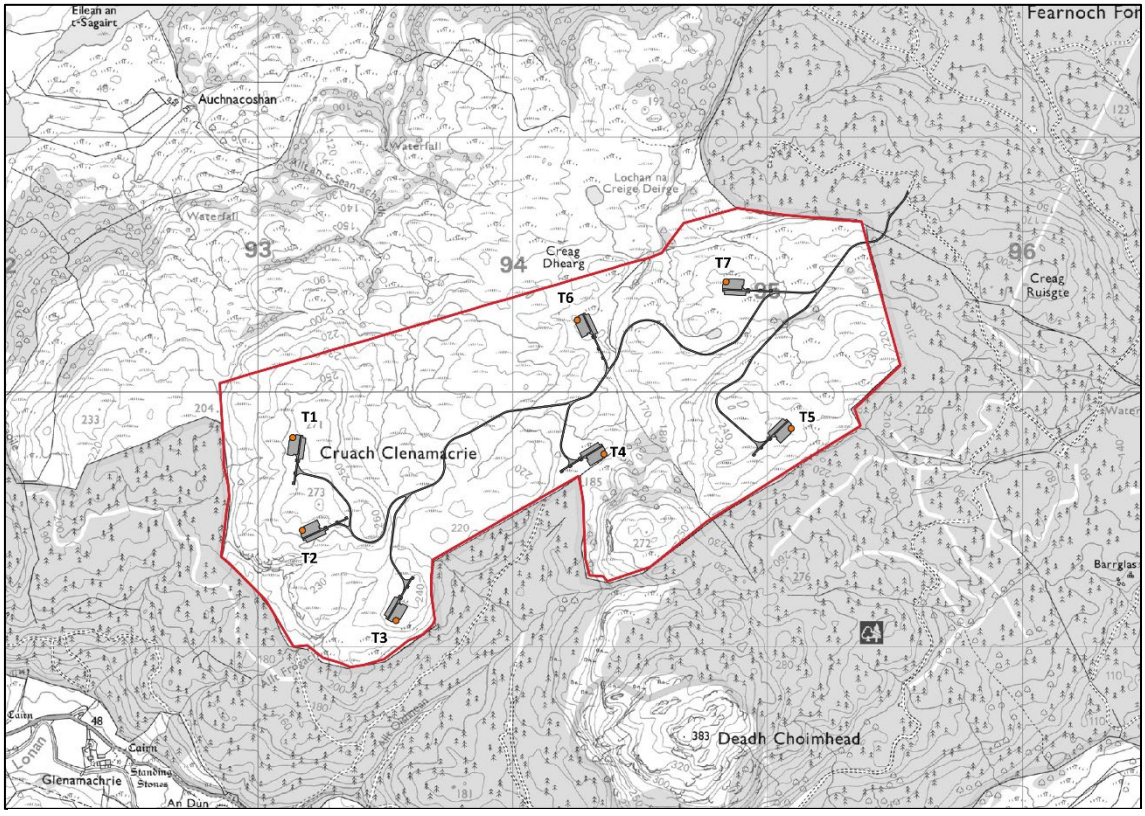

IMAGE 4.3 - SEVEN TURBINE LAYOUT

[5] The location of these nests and leks and the associated buffers cannot be illustrated due to confidentiality reasons.

4.6.2.2.2 Telecommunications

The presence of telecommunication links across the Site and the associated buffers required from them was provided through consultation with Joint Radio Company (JRC), Vodafone and Arqiva. Due to the buffer required for the southern link by the operators as illustrated in **Image 4.4**. Turbine 'T2' was removed from the layout as the telecommunications buffer, along with ornithological buffers and other environmental constraints, did not provide any scope to move this turbine.

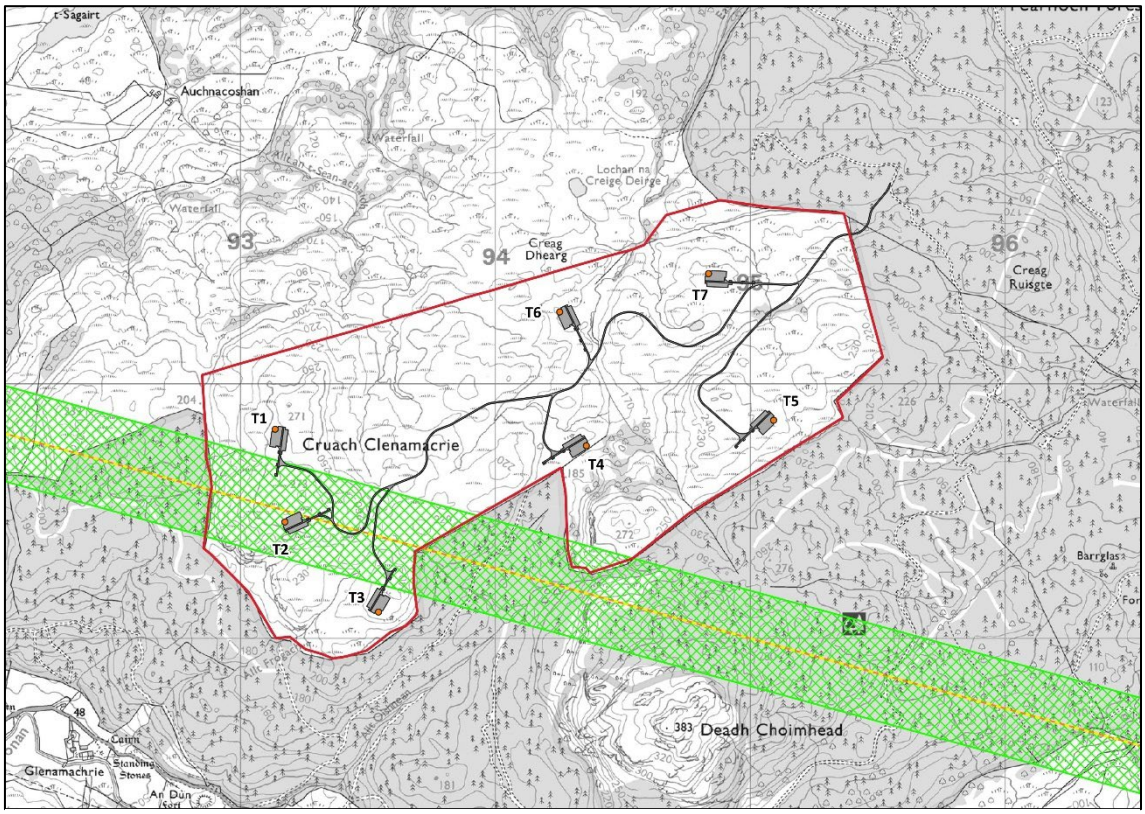

IMAGE 4.4 - SEVEN TURBINE LAYOUT WITH TELECOMMUNICATIONS INFRASTRUCTURE (ONLY ONE LINK CAN BE ILLUSTRATED DUE TO CONFIDENTIALITY REASONS)

4.6.2.2.3 Landscape and Visual/Cultural Heritage

Following a review of the seven-turbine layout, it was also highlighted that T5, and to a lesser extent T3, appeared as outliers when viewed from some viewpoints and heritage assets. As such, these turbines were moved north as far as constraints allowed to pull T3 and T5 back off the ridgeline and allow the wind farm to appear as a more cohesive scheme.

4.6.2.2.4 Peat and Topography

Following a review of the layout against the Phase 1 Peat Survey, it was noted that T4 was located within an area of deeper peat as illustrated in **Image 4.5**. As such, this was redesigned to avoid the area of deeper peat as far as possible.

Due to the varied elevations within the Site, topography is a key constraint to consider. As such, the tracks and infrastructure had to be carefully designed around the topography in order to stay within the following technical parameters:

- Maximum 1% cross slope in one direction across hardstandings and laydowns;
- Maximum of 12% gradients on access tracks; and

- Crane pads orientated the same as the contours.

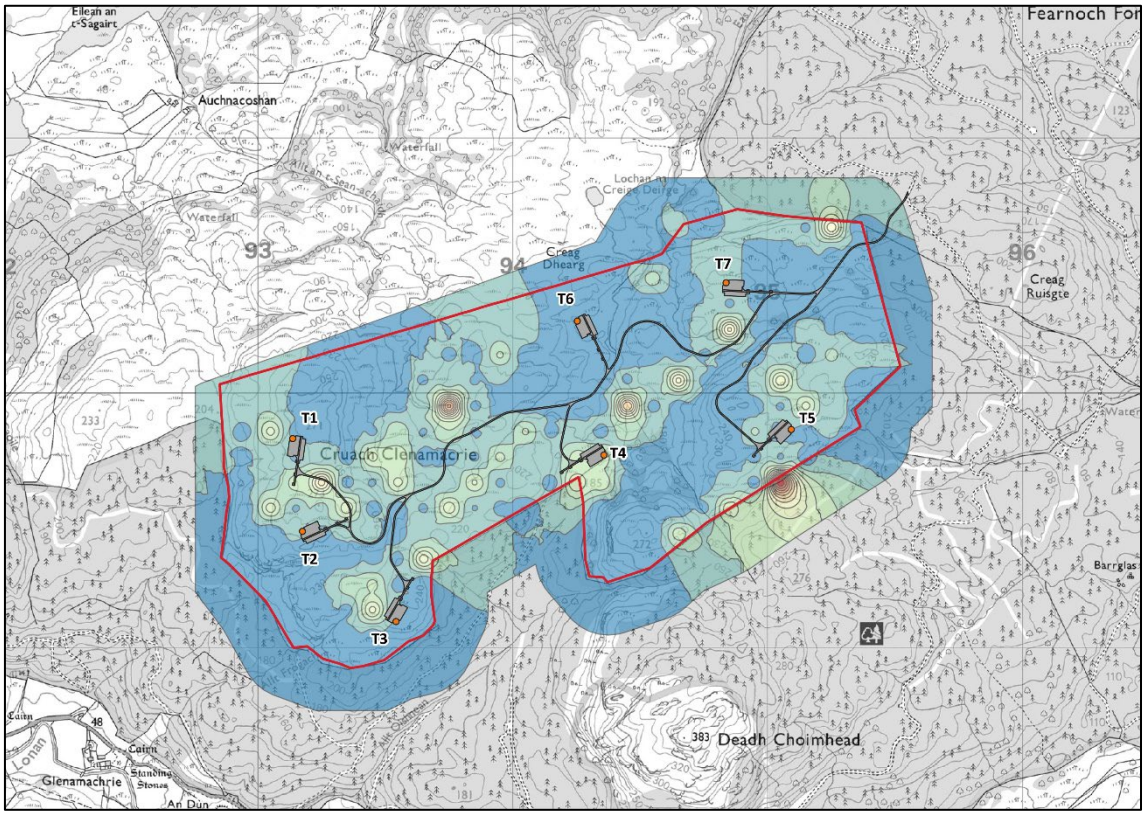

IMAGE 4.5 - ITERATION 2 WITH PHASE 1 PEAT PROBING

4.6.2.2.5 Ecology

At this stage, it was also highlighted that some of the infrastructure for T1, T2, and T5 were running through some of the 'Very High Value' habitats as indicated on **Image 4.6.** This was also taken into consideration through the redesign of the infrastructure for Iteration 2 and can be seen in **Image 4.7** that this has now been avoided.

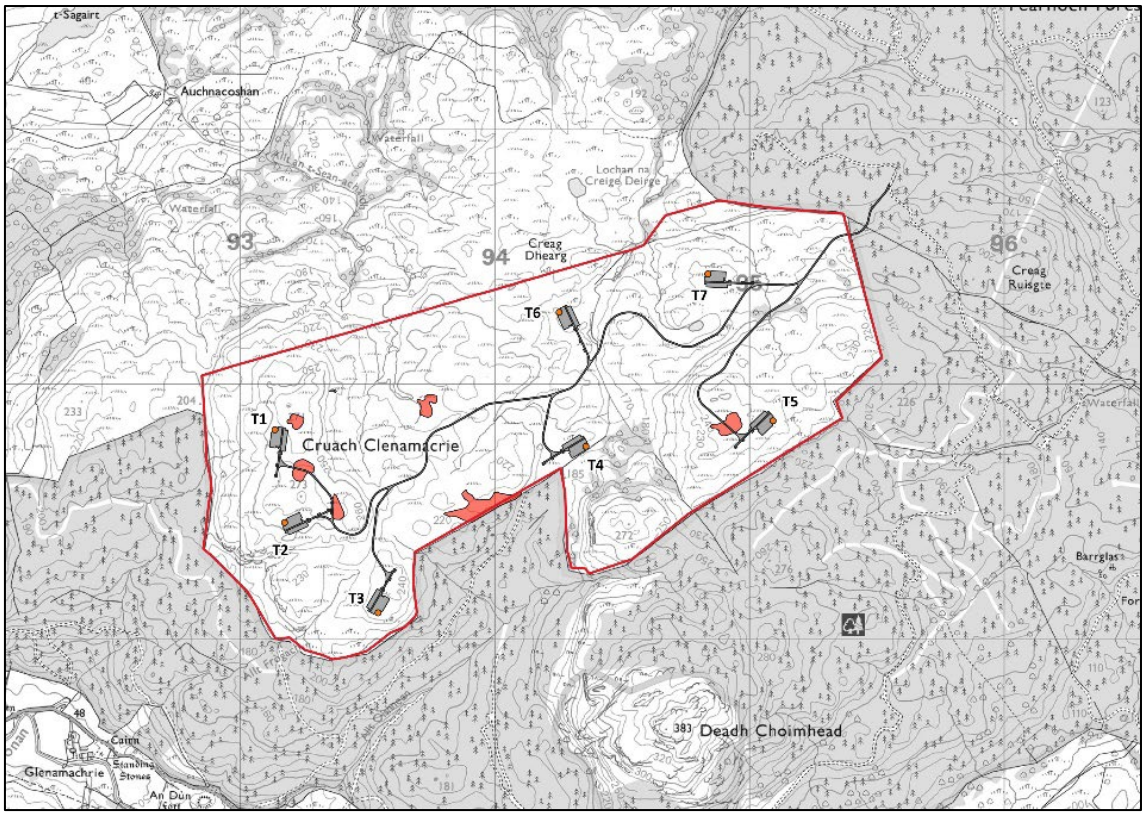

IMAGE 4.7 - SEVEN TURBINE LAYOUT WITH VERY HIGHT PRIORITY HABITATS

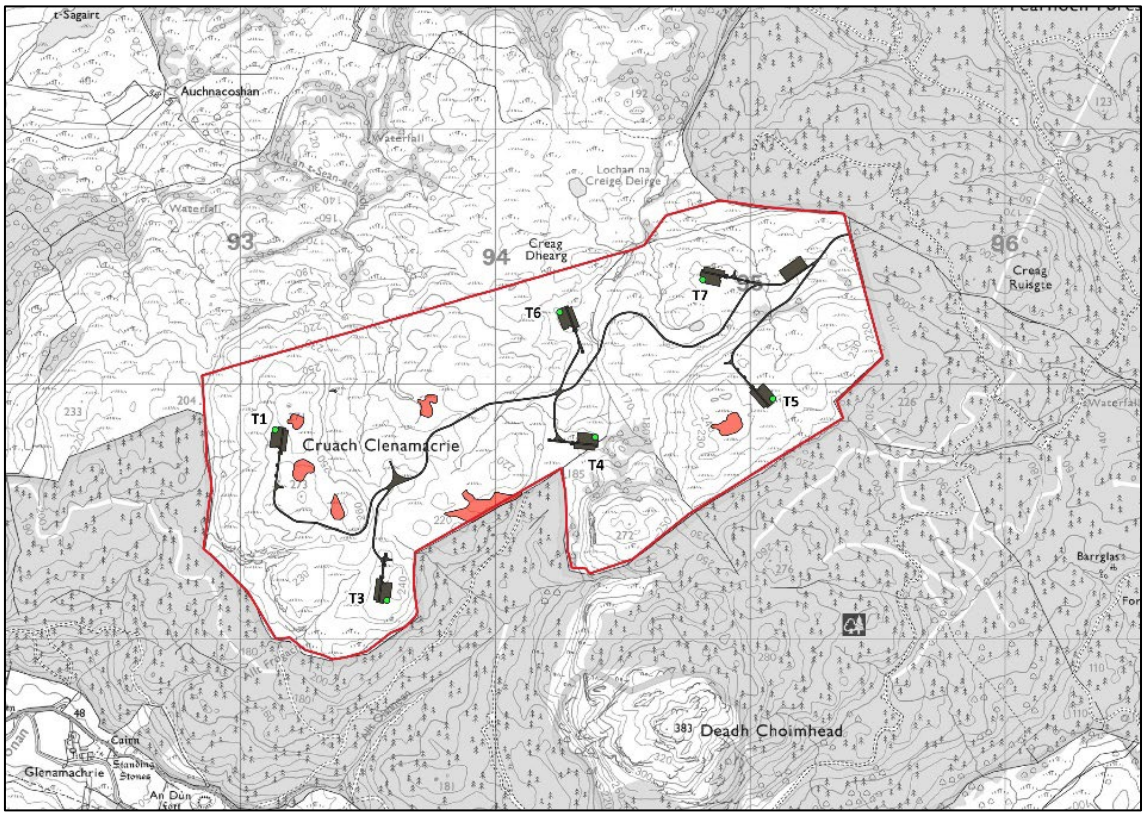

IMAGE 4.6 - ITERATION 2 REDESIGN WITH VERY HIGH VALUE HABITATS

4.6.2.3 Summary

The design changes outlined in the sections above resulted in the loss of two turbines and the six-turbine layout presented in **Image 4.8** and **Figure 4.2.**

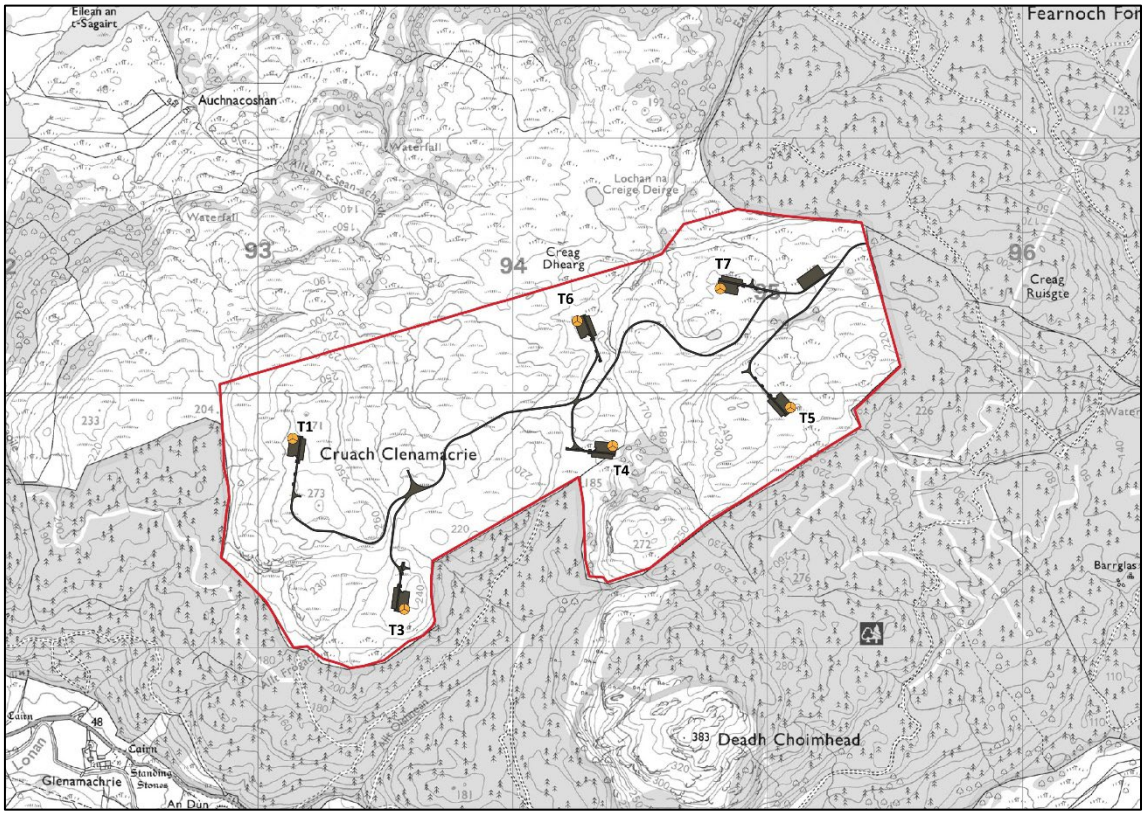

IMAGE 4.8 - ITERATION 2 TURBINE LAYOUT

4.6.2.4 Access Route

Following receipt of the EIA Scoping Opinion from the ECU and consultation with FLS, it was decided that the route access to be taken forward would be Option 1 from Scoping, through Fearnoch Forest. The reason for this was to avoid impacts on the SSSI and SAC located to the north-west of the Site. Access Option 1 also proposed to use existing tracks used by FLS.

The access point for Option 1 was also changed following consultation with FLS who advised that they did not want any traffic from the Proposed Development accessing the forest via the existing car park. This route is illustrated in **Image 4.9** and **Figure 4.2.**

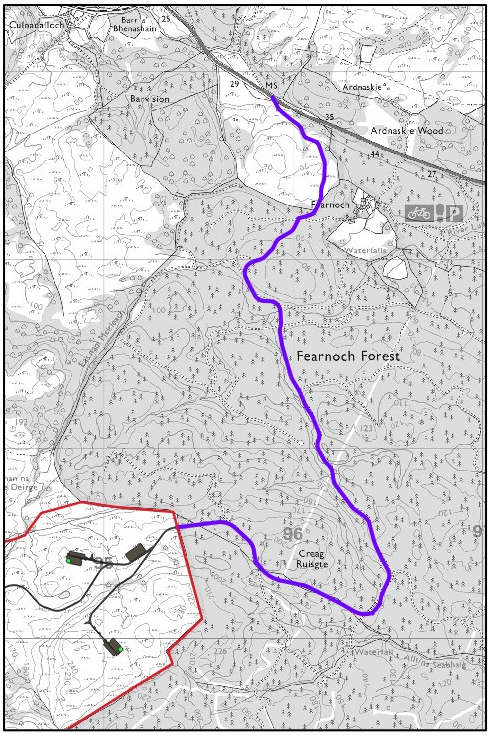

IMAGE 4.9 - ITERATION 2 ACCESS ROUTE

4.6.3 Layout Iteration 3

Following Layout Iteration 2, further survey work was undertaken, and this information was used to further refine the layout. The reasons for these changes are outlined in the following sections and resultant Layout Iteration 3 is illustrated in **Figure 4.3.**

4.6.3.1 Turbine Layout

4.6.3.1.1 Peat and Topography

Phase 2 peat probing was undertaken on the Site in November 2023 which highlighted some further areas of deep peat, primarily around T5, T6, and T7. As such, these turbines and their associated infrastructure were reorientated or redesigned as appropriate, as illustrated in **Image 4.10** and **Image 4.11.**

Additionally, the surveys also highlighted an area of deep peat by the Site compound, and as such this was adjusted by moving it north-east by 42m.

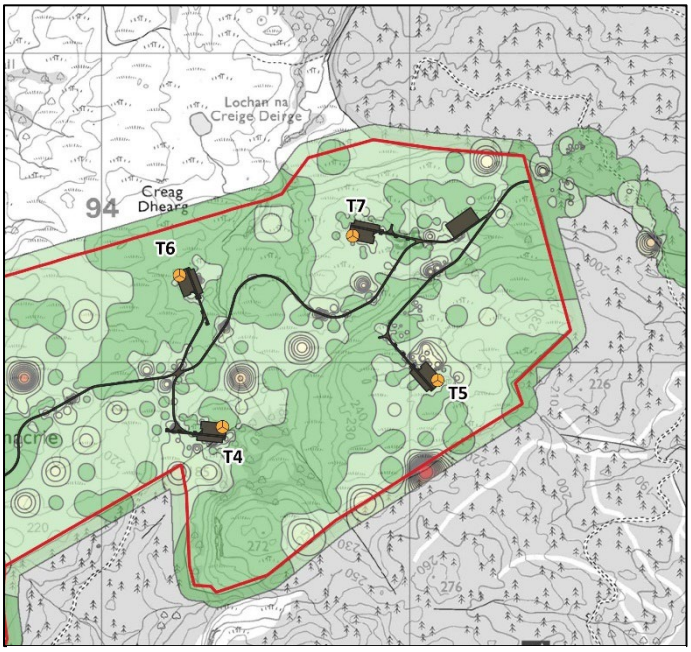

IMAGE 4.11 - ITERATION 2 WITH PHASE 2 PEAT PROBING BEFORE REDESIGN

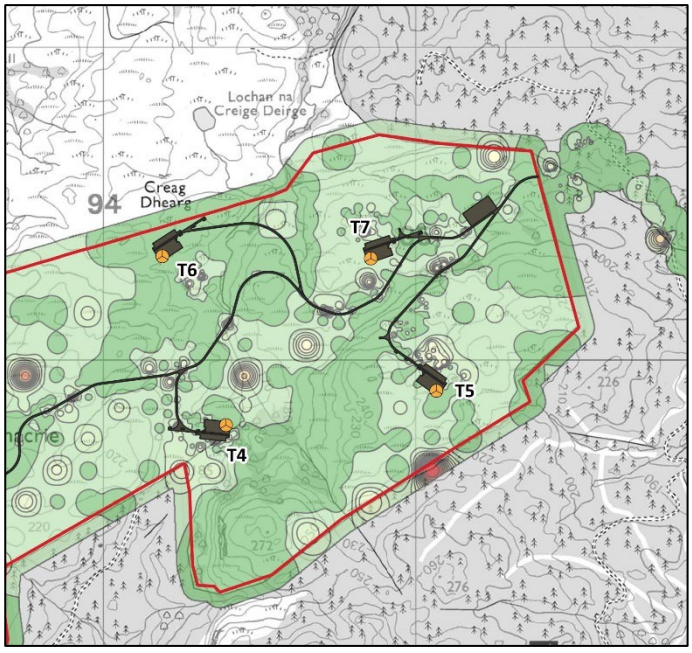

IMAGE 4.10 - LAYOUT WITH PHASE 2 PEAT PROBING AFTER REDESIGN

4.6.3.1.2 Summary

The design changes outlined in the sections above resulted in the layout presented in **Image 4.12** below and presented in **Figure 4.3.** This layout was subsequently presented at the second round of public exhibitions which were held in February 2024 in Kilmore, Taynuilt, Connel, and North Connel.

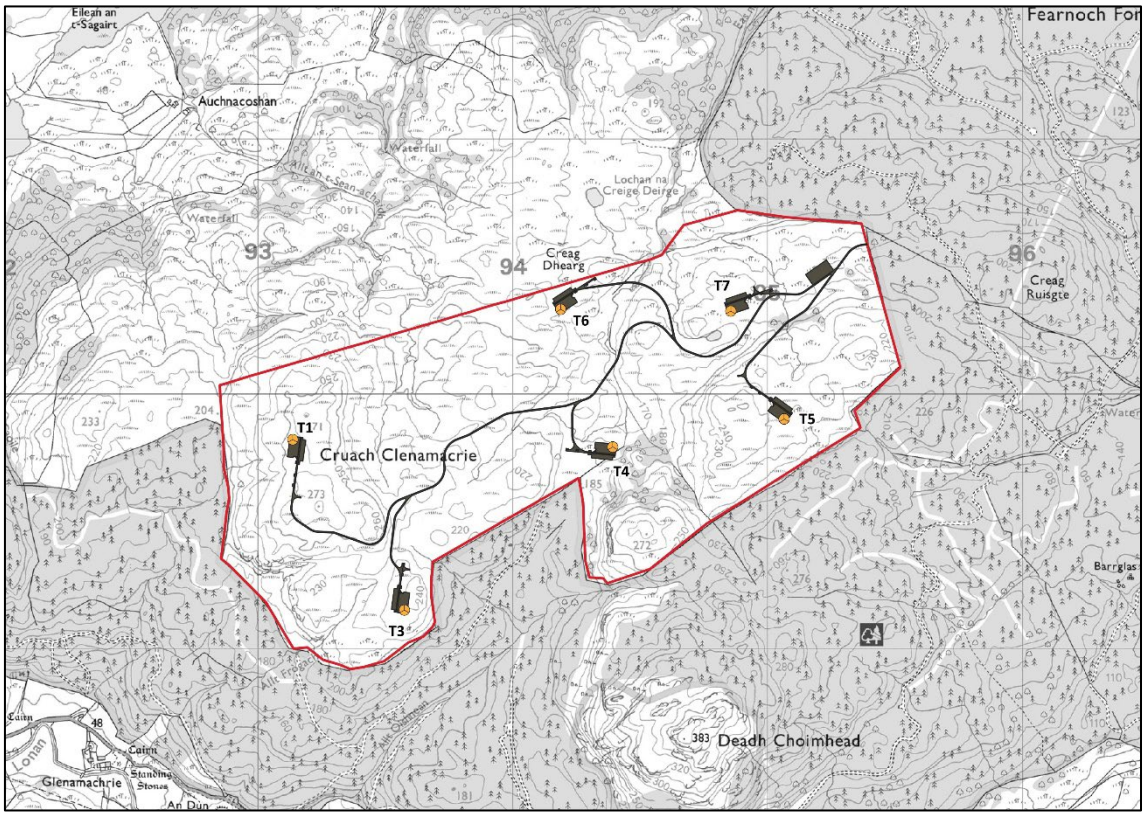

IMAGE 4.12 - ITERATION 3 TURBINE LAYOUT

4.6.3.2 Access Route

Following further survey work, consultation with FLS and NatureScot, and internal design meetings, the access point off the A85 was moved to the Dailnamac landholding. FLS advised that this was their preferred access route for any wind farm development to take through Fearnoch Forest. FLS also advised that they would expect any wind farm developers looking to take access via Fearnoch Forest to share the same access and work together. Moving the access point to this location also reduced the impact on native woodland removal.

Additionally, the Iteration 3 Access Route is more favourable from a construction perspective and in terms of potential impacts on the water environment. The Iteration 2 Access Route ran alongside approximately 1.1km of watercourses and had approximately 4 watercourse crossings, whereas the Iteration 3 Access Route, while still crossing 2 watercourses, runs alongside approximately 600m.

Additionally, this route utilises some of the existing tracks used by FLS for log haulage, reducing the amount of new track required to gain access by the wind turbines.

This access route is illustrated in **Image 4.13** and **Figure 4.3.**

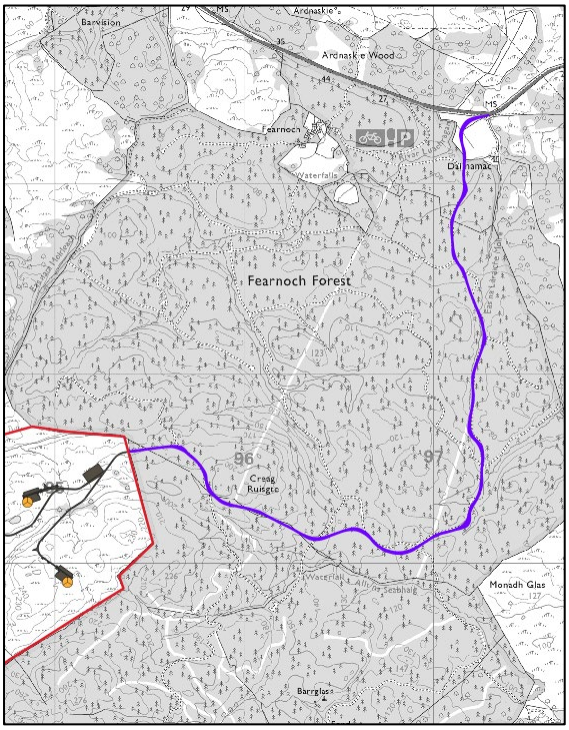

IMAGE 4.13 - ITERATION 3 ACCESS ROUTE

4.6.3.3 Application Boundary

The boundary was extended at this point to include the access tracks through Fearnoch Forest. This also allowed provision for the borrow pits, felling of any forestry coups and micrositing. Additionally, the boundary for the turbine area was updated to match the land ownership boundary. This boundary forms the Application Boundary which is presented throughout the **EIA Report.**

4.6.3.4 Turbine Layout

4.6.3.4.1 Peat and Topography

Additional peat probing was undertaken on the Site to provide further information around T4, T5, T6, and T7. This highlighted some additional areas of deeper peat around these turbines and their associated infrastructure. As such, crane pads, turbine locations, and tracks were adjusted, and reorientated in order to minimise the impact on areas of deep peat. The change in design in relation to the peat can be seen in **Image 4.15** and **Image 4.14** below. Peat is discussed further in **EIA Report Chapter 9: Geology, Hydrogeology, Hydrology and Soils.**

Further 3D modelling was undertaken on the tracks to review the gradients and the constructability. As a result, some sections of the track, particularly on the lead up to T5, were structured to improve the constructability of the track sections. In addition, this change reduced the impact on deep peat.

4.6.3.4.2 Ecology

The substation and compound have been re-sited to minimise the impacts on, and loss of, sensitive bog habitats as far as possible. While these impacts have been minimised as far as possible, the Proposed Development will still impact 7.87ha of peatland communities either directly or indirectly. **EIA Report Chapter 10: Ecology** and associated appendices outline the biodiversity mitigation and enhancement measures that are being undertaken as part of the Proposed Development.

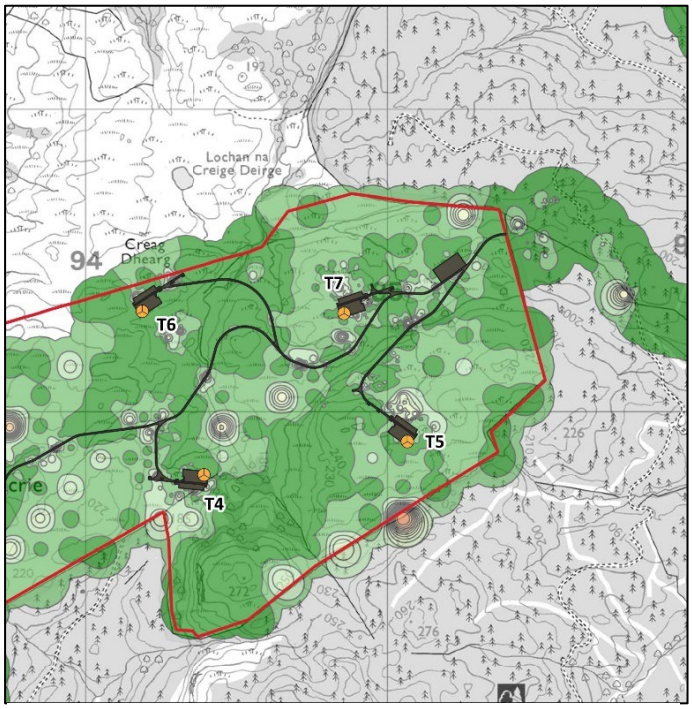

IMAGE 4.15 - ITERATION 3 WITH UPDATED PEAT PROBING BEFORE REDESIGN

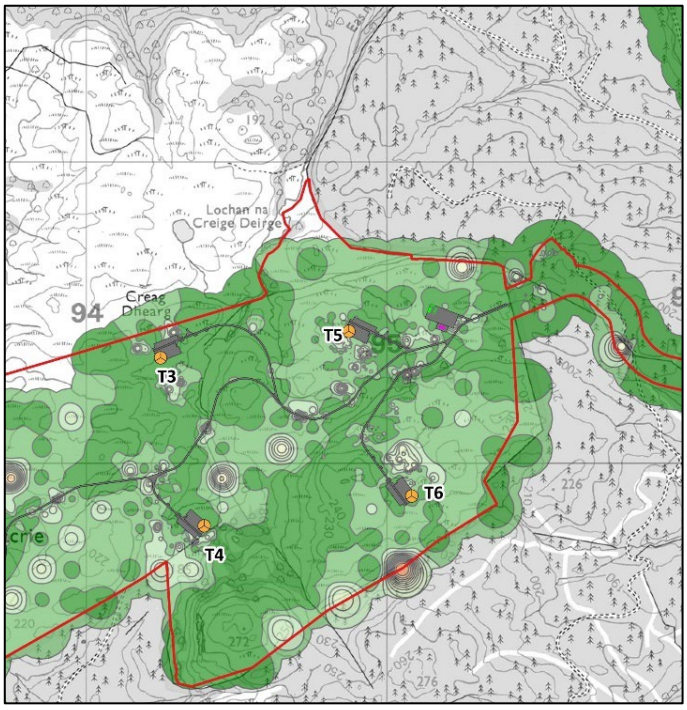

IMAGE 4.14 - REDESIGNED LAYOUT WITH UPDATED PEAT PROBING

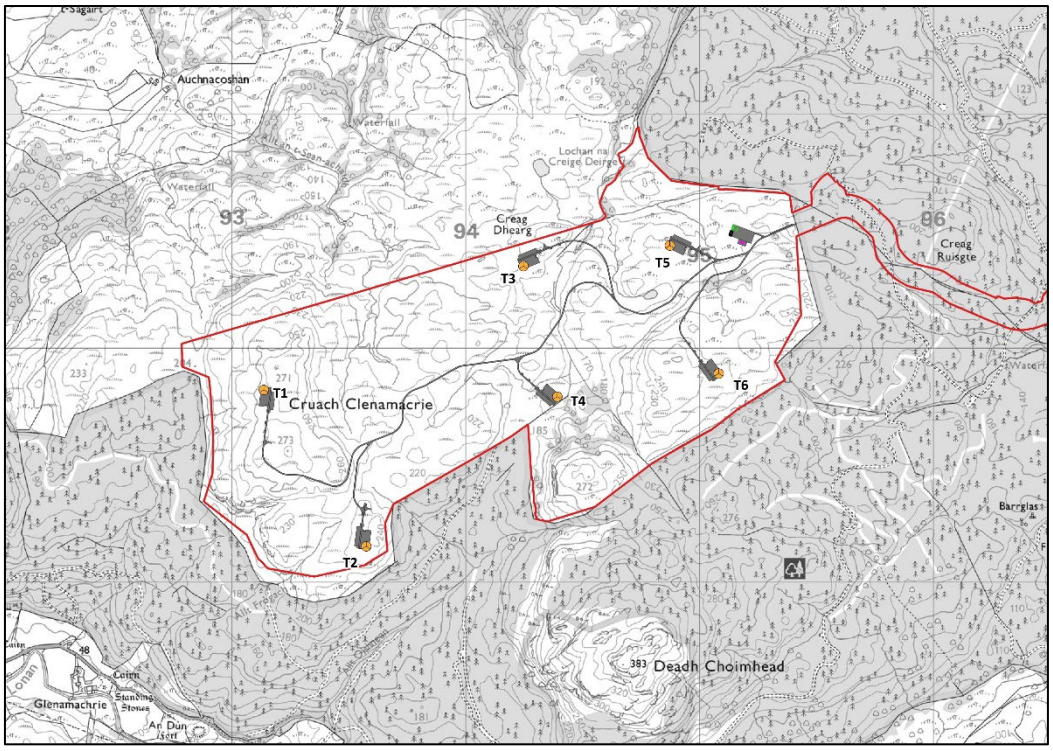

IMAGE 4.16 - ITERATION 4 TURBINE LAYOUT

Image 4.16 illustrates the resulting turbine and infrastructure layout which has been taken forward for this application and is presented and assessed throughout the **EIA Report.**

4.6.3.5 Access Route

Once the preferred access route was agreed upon, additional survey work was undertaken on the access route in order to refine the alignment and reduce impacts. These results were presented at a design workshop in June 2024 and the routes were realigned accordingly. This is summarised in the following sections.

4.6.3.5.1 Ecology/Forestry

Two areas of native broadleaved woodland were noted within the previous track alignment when undertaking the habitat surveys on the access route in May 2024. These were located around the entrance and in the south-west portion of the route. As such, the track was realigned in these locations to minimise impacts. While it was not possible to avoid all these areas due to the gradient and constructability of the track required at the entrance, the areas of broadleaf woodland impact were minimised as far as possible. These changes can be seen in **Image 4.17** and **Image 4.18.**

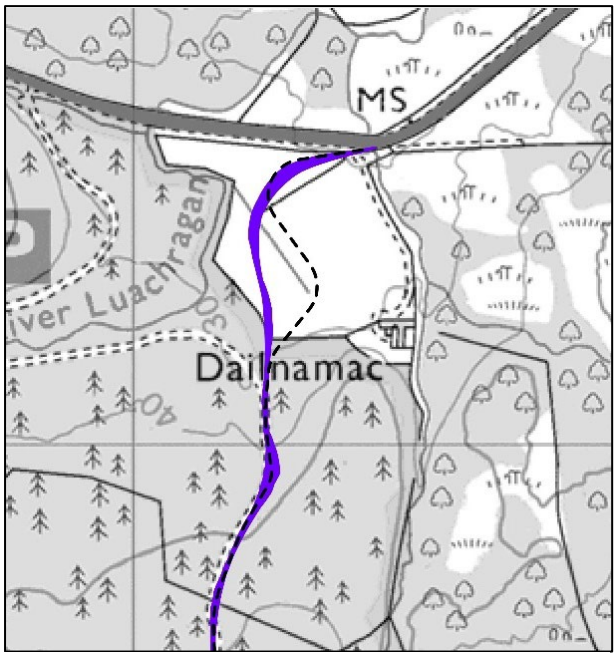

IMAGE 4.17 - REALIGNMENT FOR NATIVE WOODLAND AT DAILNAMAC (PURPLE - PREVIOUS ALIGNMENT, BLACK DASH - NEW ALIGNMENT)

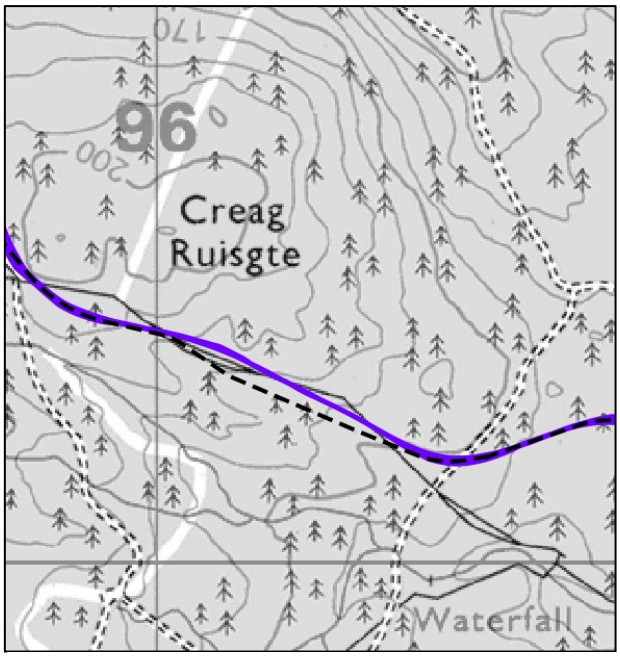

IMAGE 4.18 - REALIGNMENT FOR NATIVE WOODLAND IN SOUTH-WEST PORTION (PURPLE - PREVIOUS ALIGNMENT, BLACK DASH - NEW ALIGNMENT)

4.6.3.5.2 Peat

Peat surveys were undertaken on the access route which highlighted some pockets of deeper peat on the southern section of the proposed access route. This section of the track was realigned to the north, to avoid areas of deeper peat and reduce the impacts. Further peat surveys confirmed that the realigned track was located in shallower areas of peat. This is illustrated in **Image 4.20.** An area of floating track has been proposed in order to mitigate impacts on another area of deep peat in the southern section of the track. This is illustrated in **Image 4.19.**

Resulting from these changes, the point where the track leaves the FLS land and enters the turbine area was realigned as appropriate as illustrated by the dashed line in **Image 4.21.**

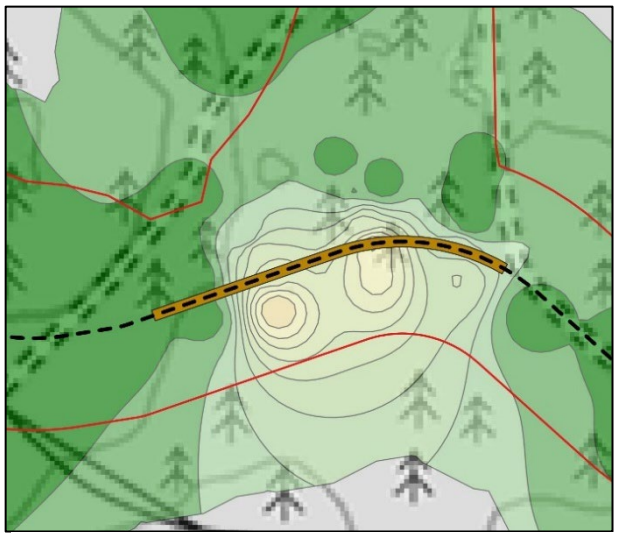

IMAGE 4.21 - AREA OF FLOATING TRACK PROPOSED IN SOUTH PORTION (BROWN - FLOATING EXTENT, BLACK DASH - TRACK ALIGNMENT)

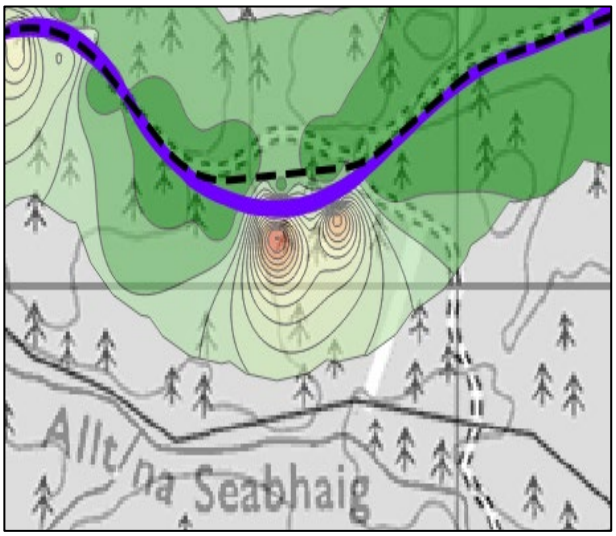

IMAGE 4.19 - REALIGNMENT FOR DEEP PEAT IN SOUTH PORTION (PURPLE - PREVIOUS ALIGNMENT, BLACK DASH - NEW ALIGNMENT)

IMAGE 4.20 – TURBINE AREA ENTRY REALIGNMENT (PURPLE - PREVIOUS ALIGNMENT, BLACK DASH - NEW ALIGNMENT)

Image 4.22 illustrates the resulting access route which has been taken forward for this application and is presented and assessed throughout the **EIA Report.**

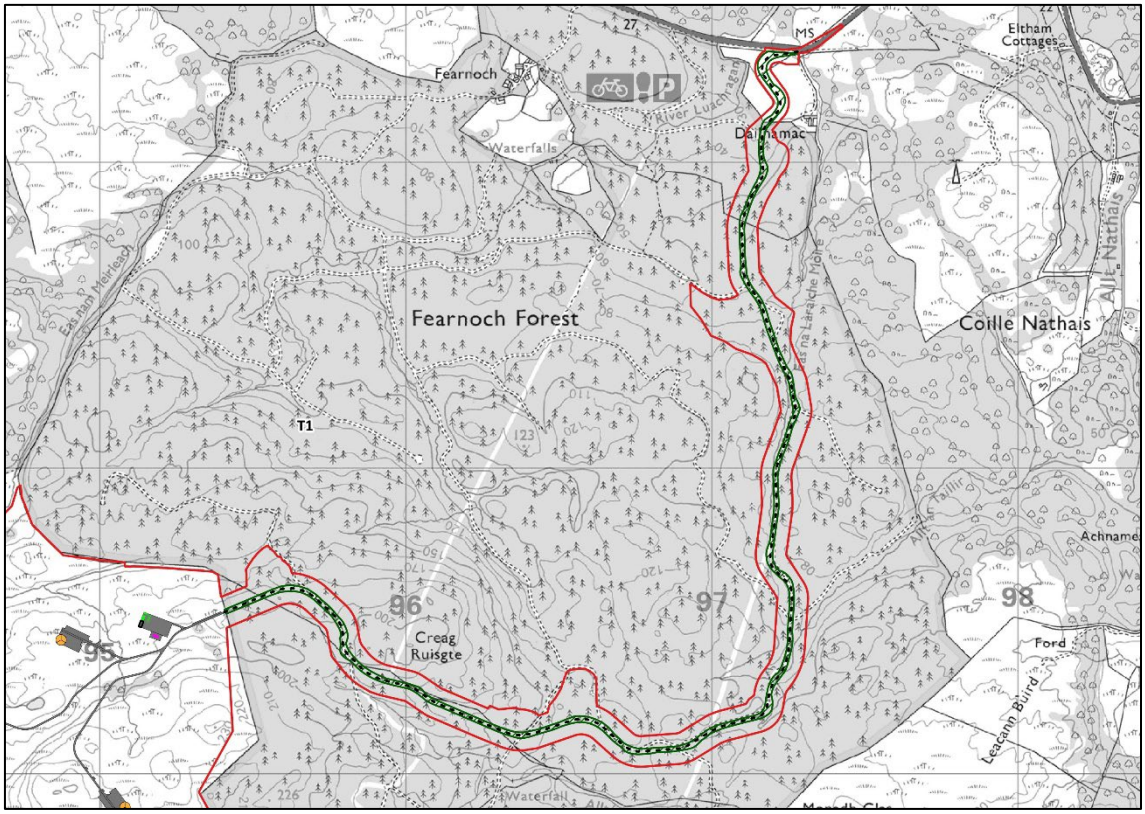

IMAGE 4.22 - ITERATION 4 ACCESS ROUTE

4.6.3.6 BESS

The Battery Energy Storage System (BESS) was sited within the construction compound area removing the requirement for an additional hardstanding area as illustrated in **Image 4.23** and any resulting additional environmental impacts.

IMAGE 4.23 - BESS SITING

4.6.3.7 Summary

This layout iteration can be seen in **Figure 4.4** and **Figure 5.6.** This is presented throughout this EIA Report and all assessments (**EIA Report Chapter 6 to 17**) have been based on this layout.

4.7 Conclusion

The final layout is the result of a comprehensive design process and communication with key stakeholders, aimed at mitigating potentially significant impacts through design.

The design principles behind the Proposed Development have considered several environmental, landscape and visual effects, amenity impacts, ground conditions, physical constraints, and engineering requirements. The design of the Proposed Development has considered baseline data from various sources including the findings of detailed site surveys in order to come to the final layout.

The final layout has been presented throughout the EIA Report as the Proposed Development, a full description can be found in **EIA Report Chapter 5: Project Description.**

By following the adopted design process, the siting and design of the Proposed Development has been optimised to avoid significant environmental impacts while maximising the generation capacity of the Site and therefore the contribution to offsetting carbon emissions.